

ENTOMOLOGY.—*Type specimens of mosquitoes in the United States National Museum: I, The genera Armigeres, Psorophora, and Haemagogus (Diptera, Culicidae).* ALAN STONE, U. S. Department of Agriculture, and KENNETH L. KNIGHT, Bureau of Medicine and Surgery, Department of the Navy¹

(Received April 13, 1955)

Holotype designation by mosquito taxonomists has become a standard practice only within comparatively recent times. As a result, many mosquito species are presently represented by more than one type specimen (syntypes or cotypes). Since the fixation of a specific name to a single specimen is essential to sound taxonomy, it is desirable practice in such situations for subsequent workers to designate one of the original type series as a lectotype. The mosquito collection of the United States National Museum contains many such syntype series, and it is proposed to prepare a series of papers for the purpose of designating lectotypes from them. In addition, pertinent notes will be given on some of the holotypes in the collection. The present paper deals with the genera *Armigeres*, *Psorophora*, and *Haemagogus*.

The types are stored separately from the main body of the collection, the pinned specimens being in separate trays in drawers, and the slides lying flat in metal cabinets. These are holotypes, lectotypes, or selected syntypes pending lectotype designation. They are arranged alphabetically by species, subspecies, or varietal name, regardless of their original or present generic position or specific synonymy.

In checking over the older species, particularly those of Coquillett and of Dyar and Knab, it has not always been possible to determine whether or not a holotype had been designated in the original description. Several localities may have been given, followed by the line "Type.—Cat. No. ____ U.S.N.M." In the collection, sometimes only one specimen bears this type number, sometimes several or all of them. If a single specimen only is labeled as

type, we accept it as the holotype, and if this is not considered a validly proposed holotype, acceptance of such a specimen as type in this paper is to be considered as lectotype designation. Where more than one specimen is labeled type, we have always selected a lectotype. Most, but not all, of the types bear catalogue numbers, and where we refer to red U.S.N.M. labels we mean labels bearing the words "Type (or "Paratype," or "Cotype") No. ____ U.S.N.M."

In this paper the names are arranged alphabetically within the genera and are listed under the original generic combinations. Taxonomic notes are given only where something has been discovered that alters the present concept of the species, or are otherwise pertinent. We have placed lectotype labels on all the specimens selected as lectotypes in this paper.

Genus *Armigeres* Theobald

Desvoidea fusca var. *joloensis* Ludlow, Can. Ent. 36: 236. 1904.

According to the original description, the series consisted of "23 (males and females)." The collection has 2 males and 3 females bearing the label "Type No. 27789, U.S.N.M.," and only these are listed in the type catalogue. One of the males bears a determination label in Ludlow's handwriting, "*Desvoidea joloensis* Ludl. Jolo Jolo, P.I. May. Type C.S.L." The other specimens bear only the red U.S.N.M. type labels. We have selected the male bearing Ludlow's label as lectotype, and have mounted the genitalia on a slide.

Culex subalbatus Coquillett, Proc. U.S. Nat. Mus. 21: 302. 1898.

This species was described from 6 females, each spread on a card mounted on a separate pin. We consider the holotype to be the only specimen bearing the label "Type No. 3962, U.S. N.M." It also bears a determination label in Coquillett's handwriting.

¹The opinions or assertions contained here are the private ones of the writers and are not to be construed as official or reflecting the views of the Navy Department or the Naval service at large.

Genus *Psorophora* Robineau-Desvoidy

Psorophora agogglyia Dyar, Ins. Insc. Mens. **10**: 115. 1922.

The three female syntypes (Type no. 25755, U.S.N.M.) are in the collection, bearing the data "Museum Paris, Gran Chaco, bords du Rio Tapenaga, Colonie Florencia, E.-R. Wagner 1903." We have selected one of these, in excellent condition, as the lectotype.

Janthinosoma champerico Dyar and Knab, Proc. Biol. Soc. Washington **19**: 134. 1906.

This species was described from a single female labeled "Champerico, Guatemala/Fredk. Knab Collector/Type No. 9968, U.S.N.M." and bearing the determination label in Dyar's handwriting, "Janthinosoma champerico D. & K. Type." This specimen is in good condition except for the loss of segments 4 and 5 of the left hind tarsus.

Janthinosoma coffini Dyar and Knab, Proc. Biol. Soc. Washington **19**: 134. 1906.

The original "8 specimens, Nassau, Bahamas, B. W. I., June 22, 1903 (T.H. Coffin)" are in the collection. All are females and one bears the red label "Type No. 9969, U.S.N.M." and the determination label in Dyar's handwriting, "Janthinosoma coffini D. & K. Type." This specimen, which we consider the holotype, is in good condition except for the loss of three legs.

Janthinosoma columbiae Dyar and Knab, Proc. Biol. Soc. Washington **19**: 135. 1906.

Of the 59 specimens of this species originally listed ("Type.—Cat. No. 9974, U. S. Nat. Mus."), 42 are now in the collection. Only one bears the red U.S.N.M. type label. It also bears the label "Iss. IX.27 Grassym." and the determination label in Dyar's handwriting, "Janthinosoma columbiae D. & K. Type" and is a female in good condition. This is one of the Grassymead, Va., specimens and we here consider it to be the holotype.

Psorophora (Psorophora) ctites Dyar, Ins. Insc. Mens. **6**: 126. 1918.

This was described from three syntype females collected at Brownsville, Tex., August 28, 1916, by M. M. High, Type no. 21717, U.S.N.M. These are all in the collection and the one bearing the determination label "Psorophora ctites Dyar, Type" in Dyar's handwriting is here selected as lectotype.

Culex cyanesens Coquillett, Jour. New York Ent. Soc. **10**: 137. 1902.

Six females are mentioned in the original description, "Type: Cat. No. 6308, U.S.N.M.,"; these, each bearing a red type label, are to be found in the collection and only two are listed in the type catalogue. One specimen, dated June 4, bears a determination label in Coquillett's handwriting, but the other syntype, bearing the labels "Coll. Townsend/Brownsville, Tex./May," is in better condition and is here designated as lectotype.

Culex discolor Coquillett, Can. Ent. **35**: 256. 1903.

This species was based on a single female in good condition, bearing the labels "Delair, N. J. VI.28/Type No. 6894, U.S.N.M."

Janthinosoma echinata Grabham, Can. Ent. **38**: 311. 1906.

The description gives no indication of the number of adults in the original series nor where the specimens were deposited. There is a female in the collection bearing the labels "Kingston, Jamaica/M. Grabham Collector/See slide No. 373/Janthinosoma echinata Gbm [Dyar's handwriting]." The slide is of the female genitalia and is labeled "Type" by Dyar. The specimen is in moderately good condition. Mr. Mattingly wrote us that there are "4 pinned adults labeled 'Kingston, Jamaica, Dr. Grabham' in the British Museum which were included by Theobald in his description of *Janthinosoma sayi* var. *jamaicensis*. That they formed part of Grabham's type series is, I should say, doubtful and certainly it could not be proved." From Dyar's correspondence with Grabham it is evident that part or all of Grabham's collection in Jamaica was destroyed by an earthquake. In the absence of any information to the contrary, we consider this female labeled by Dyar to be the holotype.

Janthinosoma floridense Dyar and Knab, Proc. Biol. Soc. Washington **19**: 135. 1906.

This species was described from 105 specimens which were entered by Dyar in the U.S. N.M. Type Catalogue as "Type and cotypes," all collected in Florida. The collection now contains 95 of these, and all bear the collector label "Dyar and Caudell" and a field number. A female bears the number "43," red label "Type No. 9972, U.S.N.M.," and the determination label in Dyar's handwriting, "Janthinosoma floridense D. & K. Type." This specimen is the

only one bearing a red type label, and we consider it to be the holotype. Dyar and Caudell's notes show no. 43 to have come from Alligator Creek, Fla.

Psorophora funiculus Dyar, Ins. Insc. Mens. **8**: 141. 1920.

This species was originally described from "Types, two males, two females, No. 23088, U. S. Nat. Mus., Río Frio, Dept. Magdalena, Colombia, March 4, 1913 (J. H. Egbert)." The collection has these syntypes with the exception noted below. The date on all of them is "3-5 March 1913." One of the males is intact and this is here designated as lectotype. The second male is lost from the pin but most of the abdomen is mounted on a slide. The two females are in good condition.

Aedes haruspicus Dyar and Knab, Proc. U. S. Nat. Mus. **35**: 56. 1908.

This species was described from "Twenty-one specimens, Port Antonio, Jamaica, bred from larvae in seaside pools, November 15, 1906 (M. Grabham)." The collection contains 8 males and 8 females of this series. One of each sex bears a red label, "Type No. 11995, U.S.N.M.," and the female, in good condition, bears the determination label in Dyar's handwriting, "Aedes haruspicus D. & K. Type." We select this female as lectotype.

Aedes horridus Dyar and Knab, Proc. U. S. Nat. Mus. **35**: 56. 1908.

The original description lists 56 specimens from a number of localities, with no sex given, followed by the line "Type.—Cat. No. 11999, U.S.N.M." The collection now contains 42 of these 56 specimens. One female bears the labels "Victoria, Texas V.30/W. E. Hinds/Type No. 11999 U.S.N.M. [red]/Aedes horridus D. & K. Type [Dyar's handwriting]." A second female from Greenville, Texas, bears the same red type label. These two specimens are designated specimens I and II respectively in the following discussion. In addition, there are 40 specimens labeled by one of us [A. S.] with red U.S.N.M. cotype labels at the time the series was being restudied.

When Roth (1945) restudied these specimens, he discovered that two species were involved. He selected as a lectotype not one of the two specimens marked with a red type label in the collec-

tion, but one of those marked "cotype" that was listed in the original description, from Corinth, Mississippi. The identity of *Psorophora horrida*, as based upon this lectotype, has become accepted in current mosquito literature in the United States. For the reasons that follow, we accept this as a validly selected lectotype and reject the specimen (No. I) labeled by Dyar as type, as the type of *horridus*.

1. Two specimens (I and II) out of the original 56 were originally labeled with identical red type labels, and these were from different localities. A lectotype designation was necessary, since these are obviously syntypes.

2. The U.S.N.M. Type Catalogue gives a number of localities and several collectors, and there is no distinction between types and cotypes or paratypes in the catalogue, these all being designated as "Types." More than just the two specimens bearing the type labels were considered as types in the catalogue.

3. Roth examined all but one of the specimens listed in our first paragraph. His opinion that two species were involved in determinations of *Psorophora horrida* was based on both female and male characters, but since only females were included in the original series he selected a female from Corinth, Miss., as the lectotype. Specimen I was not at the Museum at the time Roth studied the series, since types or selected syntypes were removed from wartime dangers.

4. Howard, Dyar, and Knab (1917) accepted Felt's (1904) description and photograph of the male genitalia of *Janthinosoma lutzii* as being of the male of *horrida*, and redrew it. Roth accepted this opinion and showed that the species having silvery white knee spots and other external characters had genitalia of this sort. The original description of *horridus* states, "the knees silvery white," in this respect not agreeing with specimen I. All the characters of specimen I agree with *P. longipalpis* Roth, while specimen II appears to be *horrida* as defined by Roth. He could have selected II as the lectotype, but apparently preferred to take a specimen from nearer the center of distribution of the species.

Psorophora howardii Coquillett, Can. Ent. **33**: 258. 1901.

The original 3 males and 1 female of this species, from Hartsville, S. C., July 23, 1901, W. K. Coker, are in the collection. One of the males, in good condition, bears the red label

"Type No. 5793, U.S.N.M." and Coquillett's determination label, and we consider it the holotype.

Janthinosoma indoctum Dyar and Knab, Proc. Biol. Soc. Washington **19**: 161. 1906.

In the original description this name was said to be proposed "for the larvae called '*Janthinosoma scholasticus* Theobald' (Journ. N. Y. Ent. Soc. xiv, 182, 1906)," but the authors described the adult and gave as material "22 specimens, Trinidad (F. W. Ulrich; A. Busck). Type—Cat. No. 10026, U. S. Nat. Mus." We find in the collection one male bearing this type label and the labels "17.3/Trinidad, W. I. Jan./Aug. Busck Collector." This specimen, which has associated with it a pupal skin on a slide, we consider the holotype.

In addition there are 18 other specimens (14 females, 4 males) bearing the labels "42 [some with subnumber]/Trinidad, W. I. Jun./Aug. Busck Collector." There is also one female labeled "Trinidad, W. I., F. W. Ulrich." These 19 specimens are presumably also of the type series but do not bear type labels. Five of the no. 42 series have associated pupal skins and some of them fragments of larval skins mounted on slides.

Janthinosoma infine Dyar and Knab, Journ. New York Ent. Soc. **14**: 181, 182. 1906.

The larva of this species is described in the key on p. 181, and additional characters are given on p. 182, and portions of the larva are figured. There is no indication of the number of specimens included nor is the adult described. Dyar and Knab state that the larvae were collected by Busck in Trinidad and Santo Domingo. The collection contains no specimen bearing a type label, but there are 19 males and 17 females collected by Busck in Santo Domingo, a number with associated larval and pupal skins. We have selected as lectotype a larval skin bearing the number 103.1. Associated with this is a pupal skin on the same slide and a pinned male in good condition but with a portion of the abdomen separately glued on the point. This male bears the labels "103.1/St. Domingo, W. I. Aug./Aug. Busck collector/See slide no. 193/infine [Dyar's handwriting]." Slide no. 193 of genitalia did not come from this specimen, however, since it has more of the abdomen on the slide than is gone from the pinned specimen, and it bears Busck no. 105.

Slide no. 192 bears Busck no. 103.1 and the genitalia on this slide is with little doubt from specimen no. 103.1. Data on this slide, no. 192, are given under no. 193 in Dyar's slide catalogue.

Janthinosoma insularius Dyar and Knab, Proc. Biol. Soc. Washington **19**: 135. 1906.

This species was described from "8 specimens, Santo Domingo, W. I. (A. Busck), Type—Cat. No. 9975, U. S. Nat. Mus." These specimens, all bearing Busck no. 108, are in the collection (5 females, 3 males), and one female, which we consider the holotype, bears the red U.S.N.M. type number label and Busck's number 108.1. The specimen is in fair condition and has associated with it the larval and pupal skins on a slide.

Psorophora iracunda Dyar and Knab, Proc. Biol. Soc. Washington **19**: 133. 1906.

This species was described from "5 specimens, Puntarenas, Costa Rica (F. Knab), Type—Cat. No. 9965, U. S. Nat. Mus." The collection now contains 4 of these, 3 females and 1 male. We consider the holotype to be a female bearing the determination label in Dyar's handwriting, "*Psorophora iracunda* D. & K. Type" and the U.S.N.M. red type label. The others do not bear the red type numbers. All the specimens have associated larval and pupal skins on slides, and the genitalia of the male are mounted on a slide.

Psorophora (Janthinosoma) longipalpis Roth, Proc. Ent. Soc. Washington **47**: 13. 1945.

The holotype is a male in good condition, with the entire abdomen on a slide. There are 40 paratypes.

Culex nanus Coquillett, Can. Ent. **35**: 256. 1903.

The original material consisted of "Four specimens collected at Key West, Florida, in August 1901 by Mr. August Busck and six specimens by Mr. E. A. Schwarz, April 1 to 3, 1903. Type—No. 6893, U. S. National Museum." All 10 of these female specimens are in the collection and all bear identical red type labels. We select as lectotype the one bearing Coquillett's determination label, collected August 1901. It is in rather good condition, lacking one leg and part of one wing.

Psorophora pisces Lassmann, Bol. Salub. y Asist. no. 28-29, Jalapa, Veracruz, Agosto, p. 4, 11-12. 1944.

The total number of specimens was not indi-

cated in the original description, nor was a holotype designated, but the National Museum possesses 10 females and 3 males of the original series from Tempoal, Veracruz, Mexico, July 1944. The slide of the genitalia of one male is labeled "Type" by the author, and that of another "Paratype," but these slides are not so labeled as to tell which set of genitalia came from which pinned male. It seems best, however, to select the male slide labeled type as the lectotype, leaving the rest of the specimen uncertain. There is no evidence that the series does not all represent one species, and no reason to believe that Lane (1953) was incorrect in considering *P. pisces* Lassmann to be a synonym of *P. champerico* (Dyar & Knab).

Psorophora saeva Dyar and Knab, Proc. Biol. Soc. Washington **19**: 133. 1906.

Of the three original specimens only one can be certainly recognized. This is a female, in good condition except for lacking most of three legs and the tip of one wing. It bears the red label "Type No. 9964, U.S.N.M." and the labels "Trinidad, W. I./F. W. Ulrich/B4-1/Psorophora D. & K. Type [Dyar's handwriting]." This we consider to be the holotype. No larval or pupal skin has been found to bear the number B4-1.

Janthinosoma schwarzi Dyar and Knab, Proc. Biol. Soc. Washington **19**: 135. 1906.

The single specimen from Cayamas, Cuba, Type no. 9970, U.S.N.M., is a female in good condition except for the loss of segments 4 and 5 of the left hind tarsus.

Taeniorhynchus signipennis Coquillett, Proc. Ent. Soc. Washington **6**: 167. 1904.

The original material of this species was stated to be from "Monterey, Mexico. One female and four males (the latter much abraded), bred by Dr. Goldberger. Type—No. 8029, U. S. National Museum." All 5 of these specimens bear identical red type labels. The female is in much better condition than the males and it bears Coquillett's determination label, so we select it as lectotype.

Psorophora stigmatophora Dyar, Ins. Insc. Mens. **10**: 116. 1922.

The types were given as "two females, and one male, No. 25756, U. S. Nat. Mus." These syntypes are in the collection, bearing red type number labels. We select as the lectotype the male bearing the labels "Museum Paris, Gran

Chaco, bords du Rio Tapenaga, Colonie Florencia, E.-R. Wagner 1903/1660." This specimen lacks one wing, one antenna, one palpus, and three legs and the other wing is in poor condition. The genitalia are mounted on slide no. 1660. One female is in poor condition, the other in rather good condition.

Janthinosoma texanum Dyar and Knab, Proc. Biol. Soc. Washington **19**: 135. 1906.

The original series consisted of "7 specimens, Brownsville, Texas, May 21, 1904 (H. S. Barber). Type.—Cat. No. 9971, U. S. Nat. Mus." In the type catalogue these are listed as 5 specimens, "Type and cotypes." The collection now contains one female in good condition with the determination label and red U.S.N.M. type label, and 5 females bearing only date, locality, and collector labels. We consider the specimen labeled type to be the holotype.

Janthinosoma toltecum Dyar and Knab, Proc. Biol. Soc. Washington **19**: 135. 1906.

This species was described from 89 specimens entered by Dyar in the U.S.N.M. Type Catalogue under no. 9973, as "Type and cotypes." The collection now contains 72, all from Mexico, the Dallas, Tex., specimens collected by Hinds not having been found. The one specimen bearing the red U.S.N.M. type label, which we here consider to be the holotype, is a female in good condition from Tehuantepec, Oaxaca, Mexico. It bears the label "No. 286. See F. Knab's Entom. notes." These notes show the specimen to have been collected as a larva, June 29, 1905, from ditches of very foul water along railroad tracks. This specimen also bears the label in Dyar's handwriting "Janthinosoma toltecum D. & K. Type."

Psorophora totonaci Lassmann, Proc. Ent. Soc. Washington **53**: 285. 1951.

The holotype is an intact male in good condition except for being somewhat greasy.

Janthinosoma vanhalli Dyar and Knab, Proc. Biol. Soc. Washington **53**: 285. 1906.

This species was described from 7 specimens entered by Dyar in the U.S.N.M. Type Catalogue under no. 9967, as "Type and cotypes." All these specimens (5 females and 2 males) are in the collection, and bear the label "Paramaribo, Surinam, Dr. Van Hell." A female bearing the red U.S.N.M. type label also bears the label

"called tigrimakoe" and the determination label in Dyar's handwriting "Janthinosoma vanhalli D. & K. Type." This specimen is considered to be the holotype.

Conchyliaestes varipes Coquillett, Can. Ent. **36**: 10. 1904.

The original description states "Five female specimens, Type No. 7341, U.S.N.M. Las Peñas and Tonala, Mexico (Dr. A. Dugès), and Agricultural College, Mississippi (May 18, Glenn W. Herrick)." The collection has 4 of these specimens, the Tonala specimen not having been found, and two (Mexico and Mississippi) bear identical red U.S.N.M. type labels. We select the female bearing Coquillett's determination label, from Las Peñas, Mex. 7-18-03, A. Dugès, as the lectotype. This is in fair condition except for having two legs missing.

Psorophora virescens Dyar and Knab, Proc. Biol. Soc. Washington **19**: 133. 1906.

The original description mentions 35 specimens from Mexico and Costa Rica, "Type.—Cat. No. 9966, U. S. Nat. Mus." The collection now contains 32 of these. We consider the holotype to be a female, in good condition, bearing labels "No. 309g See F. Knab's Entom. Notes/Almoloya, Oax. Mex./Type No. 9966 U.S.N.M./Psorophora virescens D. & K. Type [Dyar's handwriting]." None of the other specimens bears the type number.

Genus *Haemagogus* Williston

Aedes affirmatus Dyar and Knab, Proc. Biol. Soc. Washington **19**: 164. 1906.

The four original specimens, all females, are in the collection bearing identical U.S.N.M. type labels. The specimen from Salina Cruz, Oaxaca, Mexico, bears the determination label "Aedes affirmatus D. & K. Type" in Dyar's handwriting. Later Dyar (1921:103) restricted the type to this locality, thereby fixing this specimen as lectotype.

Haemagogus anastasionis Dyar, Ins. Insc. Mens. **9**: 155. 1921.

This species was described from two males and six females from Puntarenas, Costa Rica. These eight specimens are in the collection, bearing identical red U.S.N.M. type labels. One male bears the number 1529 and the determination label in Dyar's handwriting "Haemagogus

anastasio [sic] Type." The number refers to the slide of the genitalia on which the specific name is spelled in the same way. This specimen is here designated lectotype. It should be noted that this species has been frequently misspelled "anastasionis" in the literature.

Haemagogus andinus Osorno-Mesa, Proc. Ent. Soc. Washington **46**: 170. 1944.

The holotype is a male bearing the original data with the genitalia dissected and mounted on a slide. The collection also contains the allotype with its larval skin on a slide, 11 adult paratypes and 16 topotypic larvae or larval skins.

Haemagogus argyromeris Dyar and Ludlow, Military Surgeon **48**: 679. 1921.

This species was described from eight males taken at Corozal, C. Z., October 27, 1920, four being deposited in the U. S. National Museum and four in the Army Medical Museum. The four National Museum specimens are still in the collection, all bearing red U.S.N.M. type labels. One, with a slide-mounted preparation of the genitalia (no. 1456) is here designated as lectotype. Two of the syntypes are in poor condition.

Haemagogus boshelli Osorno-Mesa, Proc. Ent. Soc. Washington **46**: 165. 1944.

The holotype is a male bearing the original data with the genitalia dissected and mounted on a slide. In addition, the collection contains an allotype, 10 adult paratypes, and 5 topotypic larvae or larval skins.

Haemagogus celeste Dyar and Nunez Tovar, Ins. Insc. Mens. **14**: 152. 1927.

This species was described from two males, Maracay, Venezuela, November 11 and 15, 1926. The two specimens were found in the collection bearing the original data and Nunez Tovar numbers, but no type labels. We have selected the specimen bearing the labels "2270/Maracay Aragua, Venez. XI.11.26 / Nunez Tovar Coll. / No. 3" as the lectotype. This has the genitalia on slide No. 2770. A mounted pupal skin also bears the number 2270, although the date on this slide is given as "5-11-926."

Haemagogus chalcospilans Dyar, Ins. Insc. Mens. **9**: 110. 1921.

The type is a male with the abdomen on a slide. It bears the labels "247/Caldera I., Porto Bello Bay, Panama/March 27, 08/A. H. Jenn-

ings Coll./Type No. 24334, U.S.N.M./Haemagogus chalcospilans Dyar Type [Dyar's handwriting]. The genitalia are on slide No. 1481. The three paratypes listed by Dyar are in the collection so labeled.

Haemagogus spegazzinii falco Kumm, Osorno-Mesa and Boshell-Manrique, Amer. Journ. Hyg. **43**: 25. 1946.

The authors of this subspecies give no formal description but scatter the characters through several tables and keys, and give one character of the male genitalia for separating it from typical *spegazzinii*. They, "suggest that the type locality for *H. spegazzinii* subspecies *falco* should be the forest known as Volcanes in the valley of the Pitas River, municipality of Caparrapí, Department of Cundinamarca, Colombia. Specimens from this area have been deposited in the United States National Museum." In the collection are two pinned adults and 18 larval skins from this suggested type locality. One of the adults is a male with genitalia missing, the other a female. The larval skins are not associated with adults in the collection. Since the subspecies is based on a male genitalic character it does not seem advisable to select a lectotype from the material before us.

Haemagogus gladiator Dyar, Ins. Insc. Mens. **9**: 108. 1921.

The type and paratype are in the collection with red U.S.N.M. labels. The type male has the abdomen mounted on slide no. 1488. The fragmentary larval skin and the pupal skin of the paratype (Jennings no. 39.3) are mounted on a slide.

Haemagogus iridicolor Dyar, Ins. Insc. Mens. **9**: 106. 1921.

This species was originally described from two male types and eight male and seven female paratypes. All these are in the collection with corresponding red U.S.N.M. labels. Komp (1955) has selected the male with the genitalia slide no. 1468 as lectotype. This also bears Dyar's handwritten determination and type label.

Haemagogus janthinomys Dyar, Ins. Insc. Mens. **9**: 112. 1921.

This species was originally described from two male types and four male and three female paratypes. These are in the collection with corre-

sponding red labels. One of the two specimens labeled "Type" also bears the number 17-1 and the slide number 219. The number 17-1 refers to the larval skin which is mounted on a slide, and no. 219 to the slide of the male genitalia. We have selected this specimen as lectotype.

Stegoconops lucifer Howard, Dyar, and Knab, Mosquitoes of North and Central America and the West Indies **2**: pl. 23, fig. 164. 1913.

Although the date on the title page of volume 2 of this work is 1912, a copy before us has stamped in it, "Copies of this book were first issued Feb. 24, 1913." The name *Stegoconops lucifer* is first associated with a figure in this volume with no other description. Dyar (1921:107) fixed the type as "a specimen from Tabernilla, Canal Zone, Panama (A. H. Jennings, breeding number 299)." This specimen is in the collection bearing slide label 309 and the label "lucifer H. D. & K. Type" in Dyar's handwriting, and can be considered the lectotype selected by Dyar. The slide was also labeled "Type" by Dyar.

Haemagogus mesodentatus Komp and Kumm, Proc. Ent. Soc. Washington **40**: 253. 1938.

The adult type material of this species was never received at the National Museum and Mr. Komp tells us that the slide of the male genitalia of the type was destroyed in transit from Panama. There are no topotypic adults in the collection but there are 11 larval skins mounted on slides. Ten are from San José, Costa Rica (nos. 206 and 207) and one is from Parque Bolívar, San José, Costa Rica. The latter is labeled as a male, and may be the larval skin of the type, but this is not certain.

Haemagogus (Stegoconops) panarchys Dyar, Ins. Insc. Mens. **9**: 104. 1922.

The type series is as given in the original description, the holotype being specimen no. 70, a male with most of the abdomen mounted on slide no. 1466. The specimen is in poor condition, lacking all but one wing and one leg.

Aedes philosophicus Dyar and Knab, Journ. New York Ent. Soc. **14**: 190, 195. 1906.

Dyar (1921:103) restricted the type of this species as follows: "The type locality of *philosophicus* may be restricted to Tehuantepec, Oaxaca, Mexico, Knab's breeding number 295, the type being a male, figured in the monograph,

plate 23, figure 162." The collection contains a specimen with the following labels: "No. 295b See F. Knab's Entom. notes/Tehuantepec, Oax. Mex./See slide No. 330/Type No. Restrict U.S.N.M. Dyar 1921 [red]/philosoph." Slide No. 330 is labeled "philosophicus D. & K. Type." The original description is of the larva alone, but the only immature material of this type series under no. 295b consists of 1 fragmentary larval skin and 6 pupal skins. These have been mounted on a slide. All 6 adults from these pupae are in the collection, 5 males and 1 female. Since only the larva was originally described, one must consider the fragmentary larval skin under no. 295b as the lectotype. Under Knab's number 295 this was the only larva collected, all the other collections being pupae from which adults were reared.

Haemagogus regalis Dyar and Knab, Proc. Biol. Soc. Washington 19: 167. 1906.

Of the original 22 specimens, 17 are now in the collection. Only one of these bears the red U.S.N.M. label and we consider it the holotype. It also bears the labels "No. 330v See F. Knab's Entom. notes/Sonsonate, Salv./Slide 36.I.Sb/Haemagogus regalis D. & K. Type [Dyar's handwriting]." It is a male with the genitalia mounted on a slide and the pupal skin and fragmentary larval skin on another slide.

Haemagogus uriartei Shannon and Del Ponte, Rev. Inst. Bact. 5: 68. 1927.

The collection contains a male bearing the

labels "Ins. Bac. Ent. nota 128-3/Vipos, Tuc. 4.II.27/2353/Type No. U.S.N.M. [red]/Haemagogus uriartei Sm & D P [Shannon's handwriting]." The original reference gives "Distribución: Tucumán (Vipos, 22.3.27; Shannon y Del Ponte, localidad del tipo." Since the authors refer to one male reared from a larva collected in Vipos, the difference between the published date and the date on the label may be due to the difference in times of collection of the larva and emergence of the adult. The genitalia are mounted on slide No. 2353 and what is probably the pupal skin of the type on a slide labeled "Pupa V3 Vipos 4.II.27 Haemago." There is also a female (Raco, 13.2.27) from the original series in the collection. We consider the male to be the holotype.

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ENTOMOLOGY.—*New apterous Aradidae from Puerto Rico (Hemiptera)*. CARL J. DRAKE, Iowa State College, and J. MALDONADO-CAPRILES, University of Puerto Rico.

(Received May 27, 1955)

Very little is known relative to the aradid fauna of Puerto Rico. Barber (1939, pp. 329-330) recorded two genera, each represented by a single species, from the island. These species were *Mezira abdominalis* (Stål) from Mayagüez and Hispaniola and *Aneurys minutus* Bergroth from Adjuntas. Fifteen years later, Harris and Drake (1944, pp. 130-131) described a new genus and new species of an apterous aradid as *Eretmocoris tatei* from a male specimen taken at Lares.

The present paper contains data on three genera and four species of Aradidae, includ-

ing the characterization of one new genus and two new species of apterous aradids. As adults are needed for their identification, the records do not include these two genera, each represented by nymphal stages, taken in forest litter near Mayagüez by means of a Berlese funnel. The two forms heretofore listed in the literature are as follows: *Aneurys minutus* Bergroth, two adults and one last instar nymph, found under loose bark of a tree, Yauco, March 5, 1955; and *Eretmocoris tatei* Harris and Drake, Mayagüez, March 5, 1955, taken by means of a Berlese funnel from forest litter on the